



West African wildlife: a resource in jeopardy

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Overexploitation of West African wildlife is threatening to destroy a traditional and important source of food, income and cultural values in many areas. This article reviews the wildlife management structures in the region and describes the priority research needs that must be met to maintain the resource.

- The importance and value of wildlife in West Africa must not be underestimated. For all West Africans, wildlife is food; for some, it is the symbol of their culture; for others, it is their religion and even their identity.

Traditionally, wildlife was regarded as a valuable community asset, which was used and protected by customs and taboos. More recently, however, with the introduction of outside education and religious values, many Africans have begun to question things for which no explanations nor scientific bases existed, things that could not be measured or quantified. This has led to the breakdown of some traditions and taboos and exposed the wildlife they protected to serious threats. An increase in human population and its associated need for more resources, including wildlife; a lack of suitable and adequate substitutes for bushmeat; and, the availability of efficient hunting equipment has increased the rate of wildlife exploitation. At the same time, wildlife habitats have been increasingly degraded through agricultural practices, deforestation and the opening up of hitherto inaccessible areas.

[VILLAGE WOMEN IN MALI feeding their families has top priority / A. VAN ASTEN](#)

Table 1. Wildlife as a source of food in West Africa

Country	Bushmeat consumption
Benin and Togo	Burkina Faso hunters sell smoked bushmeat as far afield as towns in Benin, Ghana and Togo (Spinage, 1983).
Burkina Faso	Most hunters hunt for profit. Meat is smoked and sold in major towns where it is much sought after (Spinage, 1983).
Cameroon	Game is an important source of protein and a preferred traditional food much in demand. 30 percent of meat consumed is game (Balinga, 1978).
Côte d'Ivoire	In the northern part of the country 27 9 bushmeat was consumed per person per day (Sale, 1981).
Ghana	Bushmeat is eaten by all classes of people. 52 649.6 kg bushmeat was sold in a single market in Accra in 1985.
Liberia	Antelopes (mainly duiker) and various species of monkeys are the most popular bushmeat

	(Jeffrey, 1977).
Mali	In the 1960s, when there was a local abundance of wildlife, smoked warthog (<i>Phacochoerus aethiopicus</i>) meat was an item of international trade between Mali and Ghana. Other species of wild animals are eaten locally (Asibey, 1980).
Nigeria	46-62 percent of total meat consumption was bushmeat. 95 percent of people interviewed ate bushmeat regularly (Martin, 1983).
Senegal	A minimum consumption rate of 373 631 t wild mammals and birds a year for the country's (1963) human population of 2 966 190 (Sale, 1981).

Today, all species of mammals, apart from small rodents, are overexploited in West Africa. In Ghana, the pygmy hippopotamus (*Choeropsis liberiensis*) has been exterminated, while a large number of species including the manatee (*Trichechus senegalensis*), aardvark (*Orycteropus afer*) and various primates (red colobus [*Colobus badius*], olive colobus [*C. verus*], black and white colobus [*C. polykomos*] and chimpanzee [*Pan troglodytes*]) are in danger of extermination. Chiefly as a result of overexploitation and habitat destruction the populations of most wild animal species in the region are at dangerously low levels. There is an urgent need to intensify wildlife management efforts to ensure survival and sustainable utilization. Successful management can be achieved only if it is based on sound scientific research. Unfortunately, this sort of scientific research is highly inadequate in the region.

This article reviews the role of wildlife in the life of West Africans, and examines priority areas for research needed to ensure effective management of the resource for maximum benefits on a sustained yield basis, as well as the factors militating against the achievement of this aim.

Wildlife as a food resource

The importance of bushmeat in the diet of West Africans is well documented (Asibey, 1965, 1966, 1974; Ajayi, 1971; Jeffrey, 1977; de Vos, 1978; Sale, 1981; Martin, 1983). All species of wild mammals are eaten: mainly duikers and rodents but also including fruit bats and primates, reptiles, birds, their eggs and nestlings and invertebrates such as snails and insects. Species that may be forbidden to a particular clan or group of people may be a delicacy in other areas, for example, the tortoise, *Geochelone* sp., is considered a sacred animal and is forbidden for the children of some members of the Asona clan in Ashanti, Ghana, but the same animal is considered to be a delicacy and is served on very special occasions to the children of other members of the same clan.

Table 1 gives an idea of the universal use of wild animals as a food resource in West Africa. Table 2 shows the volume of bushmeat trade in one market in Ghana during 1985. Bushmeat is eaten by all classes of people and is often preferred to domestic animal meat. Demand for bushmeat is far greater than supply and most people cannot afford adequate quantities. Financial returns from bushmeat are such that hunters prefer to sell their kill and buy fish (which is much cheaper) for their families. This high demand has led to overexploitation which is having serious adverse effects on the conservation of several wild animal species.

Culture and tradition

The relationship between the people of West Africa and wildlife is deeply entrenched in their traditions, cultures and religions. Certain animals may not be touched, killed or eaten by some groups of people because of religious or cultural beliefs. Such animals are considered sacred either because they saved the ancestors of that particular group of people in one way or another during wars, or the animals are believed to have the same ancestry as the people. Animals in a particular habitat may be regarded as sacred. For example, the people in a particular village are often forbidden to eat fish from the main stream that supplies the village with water and specific areas of vegetation, mainly watersheds, may be protected as sacred groves.

The following examples illustrate the role of wildlife in West African mythology and how such traditional beliefs ensured species/habitat conservation.

Black and white colobus, *Colobus polykomos*, and Mona monkey, *Cercopithecus mona*, and their habitat of deciduous forest have long been protected by local beliefs and traditions in Boabeng and Fiema, two villages in the Brong Ahafo region of Ghana. The inhabitants of these villages believe that the monkeys are sons of the gods who protect their community and should therefore not be disturbed, killed or captured. If a monkey dies, it is mourned and buried like a human being (Akowuah et al., 1975). Because of the safety of the place, other monkeys (spot-nosed [*Cercopithecus petuarista*] and diana [*C. diana*]) have moved into the area. This is the only place in Ghana where large populations of monkeys can be seen literally living with people. Yet, just outside this community, and in most other areas in Ghana, all monkey species are extensively hunted for food.

Katigiri is a village in the River Sisili valley in northern Ghana. A tract of land on the outskirts of the village has always been considered sacred and protected by traditional beliefs. The people of Katigiri believe that their ancestors were saved from enemies during wars when they hid in the bushes, and that the spirits of their ancestors and gods live in the area. Farming or clearing of the land is forbidden (habitat conservation). The adjoining lands are burnt early in the dry season to protect the sacred land from accidental fires. The sacred land is burnt only once a year, in February (the peak of the dry season when food is very scarce in the area). A ceremony of traditional rites precedes the burning and the whole village joins in the hunt that goes with it (management for sustainable use of the resource for the benefit of the whole community). Not only does this tradition protect the watershed of the stream, which is the only source of drinking-water for the people, but it also ensures the maintenance of viable populations of wild animals that are communally harvested annually. Unfortunately, with the introduction of agricultural mechanization and large-scale rice farming in the area, the whole system is threatened.

Throughout West Africa, there is no effective quota system for controlling wildlife exploitation.

Table 2. Bushmeat trade in Katamanto Market in Accra (January-December, 1985)¹

Species	Number	Total carcass weight (kg)	Value (cedis) ²
Grasscutter (<i>Thryonomys swinderianus</i>)	9 424	39 991.1	9 495 164
Maxwell duiker (<i>Cephalophus maxwelli</i>)	1 051	6 089.0	1 370 740
Royal antelope (<i>Neotragus pygmaeus</i>)	449	917.8	215210
Giant rat (<i>Cricetomys gambianus</i>)	360	388.2	54247
Bushbuck (<i>Tragelaphus scriptus</i>)	152	2 732.7	503 450
Spot-nosed monkey (<i>Cercopithecus petaurista</i>)	136	358.6	74660
Black duiker (<i>Cephalophus niger</i>)	95	1 354.6	236750
Genet cat (<i>Genetta spp.</i>)	64	110.9	20 030
Ground squirrel (<i>Xerus erythropus</i>)	54	35.0	8 120
Red-flanked duiker (<i>Cephalophus rufilatus</i>)	44	264.2	62450
Brushtail led porcupine (<i>Atherurus africanus</i>)	36	136.4	24 850
Gambian mongoose (<i>Mungos gambianus</i>)	11	7.6	1 750
Civet cat (<i>Viverra civetta</i>)	7	27.4	5 500
Bay duiker (<i>Cephalophus dorsalis</i>)	5	53.7	8700

Bush pig (<i>Potamochoerus porcus</i>)	4	64.5	12600
Two-spotted palm civet (<i>Nandinia binotata</i>)	3	7.6	1800
Tree hyrax (<i>Dendrobyrax dorsalis</i>)	2	3.1	680
Reedbuck (<i>Redunca redunca</i>)	1	7.2	2 000
Total	11 900	52 469.6	12098701

¹ Records are minimal because some traders refused permission to work on their animals.

² 60 cedis = US\$1.0 in December 1985.

For all West Africans, wildlife is food; for some, it is the symbol of their culture; for others, it is their religion and even their identity.

Language, art, philosophy and social structure in Africa are also strongly influenced by their association with wildlife. This is demonstrated in folklore, proverbs, names and symbolism. The "deer" hunting festival of the people of Winneba in Ghana is a social fabric that holds the community together. It draws natives of Winneba back home every year for the celebrations which involve the capturing of the bushbuck, *Tragelaphus scriptus*, with their bare hands.

Medicinal importance

Most Africans recognize the curative value of plants, wild animals and their by-products in physical and mental illnesses, and ante-natal care. In rural areas where access to a hospital is difficult or non-existent, people rely heavily on traditional medicine based on plants and animal products. Keharo and Adam (1974) provide scientific analyses of the therapeutic uses and chemistry of 550 plant species used in Senegal and surrounding West African countries. In almost every major town or city in West Africa, market stalls can be found where parts of plants and animals are retailed for medicinal purposes. In Ghana, species of animals (parts or whole) known to be used for medicinal purpose include the elephant, *Loxodonta africana*, all primates, the genes cat, *Genetta sp.*, aardvark, pangolin, *Manis sp.*, parrots, *Psittacus sp.*, and the hooded vulture, *Neophron monachus*.

Wildlife as pests

Wild animal pests in West Africa include rodents, monkeys, elephants, fruit bats and birds. In Ghana, elephants damage cocoa, oil-palm and food crops such as plantain, cocoyam and cassava. Rodent and bird damage to grains and other food crops is a major problem. Major bird-pest species are the red-headed quelea (*Quelea erythrops*), yellow bishop (*Euplectis afra*) and red bishop (*E. orix*). In 1984, bird-pest damage to dry-season rice grown under irrigation in the north of Ghana was estimated at 90100 percent of the total crop where no control or limited traditional methods of protection existed.

Information on total crop losses as a result of wild animal damage in the country is non-existent. The attitude of the people to wild animal pests is to destroy the offenders. The danger, however, is that damage is often exaggerated to justify the destruction of the species (as in the case of elephants). Both the pest species and the non-target species may be overexploited using the excuse of pest control; and the control methods used may be harmful to non-target organisms and pose serious environmental hazards (as in the case of rodent and bird-pest control by the application of chemicals).

Income from wildlife

Wildlife has always been recognized as a source of income derived mainly from the sale of bushmeat and wildlife products such as horns, skins and trophies. Asibey (1980) found that a farmer/hunter's income from bushmeat sales was far more than his income from maize

cultivation. Bushmeat trade provides income not only for the hunter but also for women retailers. At a bushmeat market in Kumasi, Ghana, fourth-generation bushmeat retailers can be found; each generation continues the work of its parents. Bushmeat trade is the main livelihood of women retailers.

The heavy demand for bushmeat in West Africa has not encouraged trade in live animals in the way that this aspect of wildlife utilization has developed in eastern and southern Africa. The same is true of commercial hunting expeditions and tourism. In Ghana, parrots form the main item of live wild animal trade. Table 3 shows live wild animals exported from Ghana during 1985. The state benefits from charges on hunting licences, export permits and taxes on the sale of arms and ammunition and, of course, from foreign-exchange earnings from wildlife exports.

Wildlife research priorities

Species and habitat conservation Despite the keen interest in the development and utilization of wildlife resources in West Africa, the relevant research basis is woefully inadequate. The rate of wild animal exploitation and habitat destruction in the region demands immediate surveys of sites and species for protection, to ensure that representative samples of all the important habitats in each country are protected and that species needing specific protection are identified.

Ghana at present has 13 wildlife conservation areas consisting of five National Parks, five Game Production Reserves, one Strict Nature Reserve and two Wildlife Sanctuaries distributed throughout the major vegetation zones in the country apart from the coastal habitat. A current survey of seashore birds and coastal habitats being undertaken jointly by the British Royal Society for the Protection of Birds and the Ghana Government under the "Save the Seashore Bird Programme" is expected to identify coastal sites for protection. Effective management of the conservation areas is an essential step toward continued availability of wildlife. At present, management in these areas is mainly protection against poachers in the hope of building up depleted resources. Research efforts should concentrate on status, distribution, seasonal movements, food and habitat requirements as well as habitat changes resulting from the protection and the activities of the animals.

Table 3. Live wild-animal exports from Ghana (1985)

Species	Number	Value
		(US\$)
African grey parrot (<i>Psittacus erithacus</i>)	9 580	287 400
Royal python (<i>Python regia</i>)	4 449	35 592
Scorpion (<i>Buthus spp.</i> , <i>Pandinus spp.</i>)	2 170	3038
Agama lizard (<i>Agama spp.</i>)	1 600	2 240
Bosc's monitor lizard (<i>Varanus exanthematicus</i>)	1 124	4496
Skink (<i>Mabuya spp.</i>)	410	123
Green parrot (<i>Poicephalus spp.</i>)	400	6000
Marsh terrapin (<i>Pelomedusa spp.</i> , <i>Pelusios spp.</i>)	314	471
Rock python (<i>Python sebae</i>)	254	2 032
Millipede (<i>Spirostreptus spp.</i>)	181	181
Toad (<i>Bufo spp.</i>)	60	180
Rhinoceros viper (<i>Bitis nasicornis</i>)	53	795
Gaboon viper (<i>Bitis gabonica</i>)	41	615

Spitting cobra (<i>Naja nigricollis</i>)	28	420
Chameleon (<i>Chameleo gracilis</i>)	25	300
Tortoise (<i>Geochelone spp.</i>)	22	77
Burrowing python (<i>Calabaria reinhardtii</i>)	18	72
Total	20 729	344 032

Source: Department of Game and Wildlife. Wildlife Trade Records

In rural areas where access to a hospital is difficult or non existent, people rely heavily on traditional medicine based on plants and animal products.

[CROCODILES IN BURKINA FASO wildlife management provides for both conservation and use / E.G. SANDSTROM](#)

Throughout West Africa, there is no effective quota system for controlling wildlife exploitation. The scientific basis for setting up such a system is also lacking.

In Ghana, for example, the present status of all wild animals is unknown. All species are over-exploited but since data on population sizes, structure and turnover are extremely scanty, sustainable levels of exploitation cannot be set and enforced. Species of immediate concern include the African elephant, *Loxodonta africana*, which, although fully protected by the country's laws, is regarded as a pest and is heavily poached; and the African grey parrot, *Psittacus erithacus*, which is the main item of live wild animal export trade. Conscious of the importance of parrot exports in the country's foreign-exchange earnings some wildlife officers in Ghana are advocating that the parrot trade should be temporarily banned, until ecological information on parrot populations can be provided and quotas set. Such data would enable the Government to formulate a meaningful policy on the rate of parrot exploitation.

Management for utilization Since the major obstacle to wildlife conservation in West Africa is the over-exploitation of wildlife resources resulting from the bushmeat trade, research aimed at increasing game production is of the utmost importance. Two approaches are currently being pursued in the region: the domestication of favourite wild animal species; and the setting up of reserves for game production and ranching for controlled harvesting. It is expected that these projects will increase bushmeat production and ultimately reduce the pressure on wild populations. Such projects must be encouraged and supported by international wildlife conservation organizations as well as by food and agricultural organizations concerned with wildlife conservation and food security in West Africa.

The primary objective of the Game Production Reserves in Ghana is bushmeat production. Compatible forms of land-use may therefore be permitted in such reserves. One of these, the Shai Hills Game Production Reserve (with an area of 5 443.2 ha) is being fenced as a game ranch, with plans to introduce selected wild animal species, in Burkina Faso, a pilot game ranching project was begun in 1979. The objective was to conserve wildlife and its habitat while at the same time showing that wildlife can be exploited for the benefit of the local people on a sustained yield basis (Spinage, 1983). In all these areas, information on animal numbers, primary production, habitat usage by the animals and carrying capacity is lacking and planned research should be an essential part of game production projects.

Domestication of the grasscutter, *Thryonomys swinderianus*, a hystricomorph rodent, was started by Dr E.O.A. Asibey in Ghana in 1966, and the animal is currently being bred in captivity. Dr S.S. Ajayi pursued a similar project with the giant rat, *Cricetomys gambianus*, in Nigeria. The present state of giant rat farming in Nigeria has not been reported. Grasscutter farmers in Ghana are found among both rural and urban, low- and high-income communities. The animals are kept in cages, fenced areas or pens, and are fed mainly on grasses, sugar

cane and cassava. Although the animal is not conservative in its diet, feeding during the dry season is a problem. With increasing demand from farmers, the availability of breeding stocks which at present has to be supplemented from wild populations, has also become a problem. It has been established that the animal can be selectively bred for litter size (Asibey, 1981). Research in this area should concentrate on selective breeding; the establishment of breeding stocks; food and feeding; development of commercial feeds; and the effects of diet on reproductive rates. External parasites of the grasscutter have already been studied (Ntiama-Baidu, 1980). Internal parasites as well as host-parasite relationships need to be studied in the future.

Wild animal pest control There is an urgent need for research on vertebrate pest control in West Africa, to determine the extent of damage caused by each species and develop appropriate methods for their control. Very often, the damage caused is far less than invertebrate pest damage tolerated by farmers, but wildlife officers are pestered with complaints and demands for control, because the destruction of most vertebrate "pest" species during control operations means more meat for the farmer. Where control is necessary, methods should be carefully assessed, paying special attention to existing traditional methods of control and their improvement, instead of adopting sophisticated

Research efforts should, among other things, develop easy and cost-effective means by which the locals could exploit the pests for food.

[ADDAX IN NORTHERN CHAD for all West Africans wildlife is food / T. RINEY](#)

Since the major obstacle to wildlife conservation in West Africa is the overexploitation of wildlife resources, resulting from the bushmeat trade, research aimed at increasing game production is of the utmost importance, methods used in developed countries which are very often inappropriate for African situations.

Whenever decisions are being taken on vertebrate pest control measures in West Africa, serious consideration should be given to:

- the inadequate protein supply situation in the region;
- the fact that all wild animal species are eaten;
- dead wild animals whose cause of death may not be known but might be used for food; and
- the fact that animals destroyed in control operations can provide a valuable source of protein.

In Ghana, traditional methods for the control of rodent damage to farm crops involve setting traps around the farms. Admittedly, the method is time-consuming and labour-intensive, making it difficult to use on large farms, but it has the advantage of providing a regular source of protein for the farmer and his family. Instead of examining and improving these traditional control methods, chemical control was initiated on some large farms in the country to prevent rodent damage. This, although very expensive, has not succeeded in solving the problem. The magnitude of the environmental damage and health hazards caused by the application of the chemicals is unknown and, unfortunately, research scientists required to monitor such effects are not available in the system. Even if they were, the limited gains in such control programmes do not justify their cost.

In an attempt to control a major outbreak of bird pests on dry-season irrigated rice fields in the north of Ghana, several bird-pest control methods were investigated, including traditional scaring techniques, modern scaring devices such as kites and hum-lines, mist-netting and the alteration in planting/harvest time to avoid the birds (Ntiama-Baidu, in preparation). It was found that the pest species migrate from the project area and return soon after the first rains.

Early planting to ensure that maturation of the crop does not coincide with the major influx of birds into the area offers the most promising solution to the problem. The use of avicides was ruled out at the beginning of the project in view of the cost, the environmental hazards and the fact that the birds are readily accepted as food resources and could provide a good source of animal protein for the local people, whose main source of animal protein was inadequate fish from the dam created by the irrigation project and occasional mutton, beef and chicken.

More than 80 000 birds were caught in mist-nets during a six-week period, and although the influence of this on total bird-pest populations in the area may be insignificant, it provided a regular supply of animal protein for the farmers during the period. At the end of each day, they would line up and the day's catch was shared among the family groups.

The farmers would readily exploit the birds for food if they had an easy, cost-effective method of capture. By tradition, catapults are used to kill birds in the area. With small birds (such as bishops and queleas), returns make their exploitation unattractive. Research efforts should, among other things, develop easy and cost-effective means by which the locals could exploit the pests for food. Mistnetting is expensive and, unless strictly supervised by wildlife officers, could pose a real threat to populations of non-pest bird species.

Tourism A wildlife-based tourist industry has not been developed in West Africa to the same extent as in eastern and southern Africa. The potential exists, and there is scope for enthusiastic tourists seeking new experiences in remote areas.

Active promotion and provision of the necessary facilities should increase wildlife tourism potential in West Africa. Fortunately, this is an area which is very attractive to decision-makers in view of its proven potential as a foreign-exchange earner, and should be explored by wildlife conservationists in the region. Research needed in this area would evaluate the potential and available facilities for wildlife tourism, and determine the appropriate infrastructure required for the development of a successful wild-life-based tourist industry.

Constraints

Most decision-makers in West African countries see the need for wildlife conservation but, when faced with so many more pressing problems, such as health, education, food and agriculture and with limited financial resources, they are forced to give wildlife conservation low priority. Wildlife conservationists in West Africa should therefore make "Conservation for Development" their motto, and endeavour to convince governments of the importance of wildlife and how properly managed wildlife resources can improve the living standards of the people, and contribute effectively to the national economy.

In addition to the financial constraints, there is an acute shortage of trained wildlife officers in the whole of West Africa. In Ghana, for example, the Management Division of the Game and Wildlife Department has only 11 professional officers out of an approved 55 posts. Wildlife research officers are even scarcer. Only two out of the 18 approved posts in the Research Division have been filled. Lack of trained personnel is not so much the result of financial shortage, but rather the educational set-up which, until very recently, offered no opportunities for wildlife training.

The attitude of the general West African public, that wildlife must be used as long as it is available, hampers the implementation of conservation policies. There is a major need for intensive general wildlife conservation education, to remind the people of the importance and value of wildlife; to convince them of the interdependence of animals and plants, and the need to manage wildlife to ensure a sustainable supply for utilization, which is what they are familiar with.

Given the importance of wildlife resources in West Africa for food, income-generation and

cultural purposes, over-exploitation must be replaced by programmes of improved management and increased sustainable production, built upon a foundation of sound scientific research.

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